Solid biofuel classification guidelines

Bioenergy Association Technical Guide 01
Version 6
January 2015
About this Guide:

1. The compilation of this Technical Guide has been facilitated by the Bioenergy Association\textsuperscript{1}) and the Energy Efficiency and Conservation Authority (EECA).

2. The aim is to encourage a broad commitment to the delivery of high quality and consistent quality solid biofuels. These Guidelines are voluntary but essentially provide a regulatory framework for the New Zealand solid biofuel supply sector.

3. It is an outcome of industry discussion and collaboration. It captures the collective technical knowledge of a range of leading bioenergy industry personnel. In addition, it benefits from the collective experience of the Members of the Bioenergy Association Wood Energy Interest Group (WEIG).

4. This guide is provided in good faith as an addition to the ongoing body of knowledge relating to wood energy and the wood energy sector in New Zealand and Australia. However, none of those involved with its preparation accept any liability either for the information contained herein, or its application.

5. As with all Bioenergy Association technical guidance documents, this guide is a ‘living document’ and will be revised from time to time and reissued, as new information comes to our attention. If you have suggested additions to this guide please contact admin@bioenergy.org.nz.
EXECUTIVE SUMMARY

This document is a revision of the Wood Fuel Classification Guidelines published by the Bioenergy Association¹ (BANZ) and the Energy Efficiency and Conservation Authority (EECA) in July 2010. This revision has updated the various specifications of fuels so that these align with EN 14961. The main revisions in this document have included the following:

- Broadening these guidelines so that they are applicable to all solid biofuels rather than just “Wood Fuel”;
- The terminology for some of the fuel property descriptions have been updated for example “S” for particle size is now “P” through where “S” has been used previously for the contracted specification, then this can continue to be used as the fuel property description. This change is to bring the terminology into alignment with EN 14961.
- Construction and demolition waste timber has been replaced by Urban Solid Biofuels and there are two separate grades for this material.
- Herbageous wood fuels and torrefied wood and chip were added to this updated version.
- The verification methods were removed from this document and replaced by a new separate guide “Standard Methods for Verifying the Quality of Solid Biofuel for the New Zealand Energy Market: BANZ Technical Guide 5.
- This version incorporated terminology that also makes it suitable for the Australian solid biofuels market.

This document should be read in conjunction with EN 14961, however if this is not available, then there should be sufficient information in this report to effectively define the characteristics of a solid biofuel.

This document will be revised when new solid biofuels are identified and become traded fuels.

Any enquiries regarding these guidelines should be referred to:

Executive Officer
Bioenergy Association
P O Box 11595
Manners Street
Wellington 6142

admin@bioenergy.org.nz
www.bioenergy.org.nz

¹ Bioenergy Association of New Zealand
Table of Contents

Executive Summary .................................................................................................................. 0
1.0 Introduction ....................................................................................................................... 1
2.0 Overview of Solid Biofuel Classifications ...........................................................................
3.0 Description Properties ......................................................................................................
4.0 Solid Biofuel Property Descriptions ..................................................................................
5.0 Verification methods ...........................................................................................................
6.0 Blends and Mixtures .......................................................................................................... 1
7.0 Most Common Forms of Traded Solid Biofuels .................................................................
8.0 Wood Chips ......................................................................................................................
9.0 Hog Fuel ............................................................................................................................
10.0 Wood Pellets ....................................................................................................................
    Grade 1 - Premium pellets ....................................................................................................
    Grade 2 – Large premium pellets ......................................................................................
    Grade 3 – Industrial grade pellets ..................................................................................
11.0 Urban Solid Biofuels .........................................................................................................
    Urban Clean Biofuel ...........................................................................................................
    Mixed Grade Urban Chip ....................................................................................................
12.0 Compressed Firelogs and Briquettes ............................................................................... 1
13.0 Torrefied wood and chip ...................................................................................................
14.0 Herbaceous wood fuels ...................................................................................................
15.0 Firewood ...........................................................................................................................
16.0 Bibliography ......................................................................................................................
1.0 INTRODUCTION

The wood fuel supply market is transforming and developing from an emphasis on the disposal of wood wastes to an emerging sector that supplies quality solid biofuel as an alternative to coal and gas for the production of heat. Increasingly, wood fuels and other solid biofuels are being recognized as a mainstream energy source and a number of fuel supply operators are either in the market or considering entering. In this revision of the Wood Fuel Classification Guidelines the use of the term wood fuels has been replaced by Solid Biofuels to broaden the overall range of fuels considered by this document. However because the term ‘wood fuel’ is often used in the market, and wood fuel is the dominant solid biofuel, the term ‘wood fuel’ should be considered synonymous with the term ‘solid biofuel.’

As this market emerges there is a need for sellers and buyers of solid biofuels to be confident with respect to the description and quality of the fuel sought or supplied. Confidence in terms of the fuel characteristics will increase the value to both buyers and sellers.

Increasingly, it is important that standard forms of solid biofuels are available that can be used in appropriately designed boilers and heat plant. Having defined, consistent fuel classifications will assist to de-risk projects and provide the limits for specifying boiler fuel.

These guidelines for classification of solid biofuels were prepared to provide a common terminology and methodology for classifying, specifying and declaring the quality and properties of traded solid biofuel in New Zealand. In most cases it is expected that the traded fuel will be a wood fuel.

Additional benefits of the standardised terminology and classification of these fuels include:

- An increase in use of wood energy;
- Improving consumer and user confidence in the availability and use of solid biofuel;
- Building the confidence within Regional Councils in the use of wood fuels with regard to emissions to air;
- Provide fuel quality assurance to heat plant manufacturers and wood fuel users;
- Promote wood energy as a sustainable and mainstream energy source;
- Minimise adverse environmental effects by using biofuels ‘fit-for-purpose’ and ensuring that any air emissions are minimal.

These Classification Guidelines were produced as a voluntary industry regulatory tool and have been prepared to meet specific New Zealand and Australian requirements, but most importantly they provide an effective tool to facilitate solid biofuel trading. The parameters set out are based on formal international standards but these have been simplified to meet New Zealand and Australian needs. The guidelines are not a replacement for the formal technical standards but provide a guide to the appropriate standards, or parts of a standard, to use in the context of New Zealand and Australia. For more information on the details of the formal technical standards fuel suppliers or buyers should refer to the full standard – a list of these is provided in section 16.
The Guidelines have been prepared on the basis of having a working document that the wood energy sector can use to develop a trade in solid biofuel. The Guidelines are intended to be flexible and allow a framework for defining the different kinds of solid fuels. As experience with the Guidelines is developed they will be reviewed and edited from time to time to best meet market requirements.

Additional categories of wood fuel will be added as appropriate.

Additional information on the Guidelines and their application is available on www.usewoodfuel.org.nz and set out in “BANZ Technical Guide 6 – “Contracting To Deliver Quality Solid Biofuels To Customers.”

The Guidelines were developed jointly by the Bioenergy Association (BANZ) and The Energy Efficiency and Conservation Authority (EECA). Comments on the current version of the Guidelines are welcome and should be provided to the:

Executive Officer
Bioenergy Association
P O Box 11595
Manners Street
Wellington 6142

admin@bioenergy.org.nz
www.bioenergy.org.nz
Tel: +64-(0)274 771 048